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ARIZONA DEPARTMENT OF TRANSPORTATION

INTERMODAL TRANSPORTATION DIVISION
JOINT PROJECT ADMINISTRATION
205 South 17th Avenue - Room 293E, Mail Drop 616E
Phoenix, Arizona 85007



EDWARD D. WRIGHT
Deputy Director

E. JACK HAMMITT
Joint Project
Administrator

8 September 2000

Ms. Lori Messer, Contract Manager
Office of Research & Creative Activities
Arizona State University
PO Box 871603
Tempe, AZ 85287-1603

Re: ADOT ECS File No JPA 99-118
TRACS No. HF035 01CR0402 10P
Project: Develop Performance Related AC Specifications
Amendment No. 1

Dear Lori:

The state program manager has approved the second year funding; an additional \$300,000.00 towards this research project. We may use this instrument to accomplish an amendment. Therefore, all references in the above agreement are changed as follows; \$306,000.00 is changed to read \$606,000.00.

All other terms and conditions of the agreement remain the same.

To properly memorialize this amendment, and to insure a meeting of the minds, please indicate your concurrence of this amendment in the space provided below and return one original of this instrument to the undersigned at the above address to the attention of Mail Drop 616E. Questions may be directed to the undersigned at (602) 712-8369 or Mr. Scofield @ 602-712-3131.

Sincerely,



E. Jack Hammitt, CPM
Joint Project Administrator

Concur for Arizona State University
Gary Delago, Interim Director

for
By 

9-13-00
(date)

Encl.

PROJECT DIRECTOR APPROVAL	
I have reviewed the terms of this contract and they are acceptable to me. I request that an authorized signatory execute this contract on behalf of the university.	
 Project Director:	<u>1354/2000</u> Date

ASU Research Proposal

by

Professor M.W. Witczak

“Development of Performance Related Specifications for Asphaltic Pavements in the State of Arizona”

Study Objective:

This proposal describes a 5 year research program, having as the ultimate program goal, the implementation of a methodology for Performance Related Specifications for asphalt pavements in the state of Arizona. While this is the eventual program goal, there are several very important and allied goals for the proposal. They are to

- 1 Initiate and develop a fully coordinated and integrated pavement research program and unit consisting of ASU and ADOT personnel to focus on the enhancement of technology and economic aspects related to pavement performance in the state of Arizona
- 2 Integrate the results of the most recent national research work being conducted in the U S on mechanistic pavement performance modeling into the Arizona research program. This will insure that the most cost efficient and technologically state of the art research is conducted for Arizona. This advanced M-E pavement design and analysis system that will be directly incorporated into the Arizona research program described in this report will be the currently developing 2002 AASHTO Guide for the Design of New and Rehabilitated Pavement Structures. This is currently NCHRP 1-37A project.

With the implementation of the described research program, ADOT will be assured of being one of the lead states in the country relative to implementing the AASHTO Design Guide, scheduled for introduction to the pavement community in 2002.

- 3 Develop an enhanced asphalt mixture design system that will be based upon the most recent advances formulated by the new U S Superpave system. In particular, the proposed research program described in this proposal will also utilize the most recent findings of the Superpave Models study currently being conducted under NCHRP 9-19. This should also result in ADOT being at the forefront of U S asphalt pavement technology. This will provide ADOT with the most advanced state of the art technology for mix design and field QA/QC purposes as well as the most cost effective construction technology available in the country.

Provisional Program Overview:

The program proposal described contains a series of 15 separate research projects. These projects have been scheduled over the next 5 year period to achieve the ultimate program goal associated with the development of the PRS specifications. The 5 year period is planned for 1 July 1999 to 30 June 2004. It is emphasized that while 15 separate research projects are shown, they all interact into the completion of the PRS specification development program goal. As previously noted, this goal will be accomplished by the development of an Arizona field calibrated 2002 AASHTO performance model and advanced asphalt mix design techniques, enhanced from UC Superpave studies, that will be applicable to mix design and field quality control and assurance concepts.

Provisional Project Descriptions:

Appendix A contains concise research statement objectives for each of the 15 individual research projects. These statements are intended to provide the reader with a general understanding of the specific research projects that define the provisional program.

Provisional Work Schedules and Budget Information:

Appendix B provides the provisional performance (work) schedule for each of the 15 individual research projects described in Appendix A. Also shown in this Appendix is a general (approximate) program budget estimate, developed for quarterly budget estimates, by project, for the full 5 year program.

Provisional Annual Budget Development:

Appendix C details the estimated budget breakdown, by year, for each separate research project. As noted in the next section of this proposal, the greatest budget certainty is obviously existent with the year 1 budget. Less certainty is present with each annual budget into the future. As such, annual budget estimates should be viewed as being very approximate for Years 3-5 of the program.

Specific Proposal Request:

While this proposal has presented the generalities of a provisional 5 year research program, it is emphasized that this has only been done to allow ADOT to clearly understand and comprehend the ultimate product of this comprehensive and integrated research program goal.

Specifically, this proposal requests ADOT for approval and to grant financial budget approval for only year 1 of the overall research program. It is important for the reviewer to read through the work scope statement for Project 1 in Appendix A. It is the clear intention of Project 1 to immediately work together with other ASU staff and key ADOT personnel to develop a modified (revised) research program that will also reflect the final desires and recommendations of ADOT. As noted in the scope statement for Project 1,

detailed project statements, definition of project work tasks/subtasks, performance schedules and cost estimates will be developed as the major Project 1 deliverable. This will be accomplished for each of the 15 research projects provisionally identified in this proposal.

This proposal specifically requests contract approval for a one year period of work starting 1 July 1999 and ending 30 June 2000. The budget for this first year of the 5 year program is estimated at \$306,000. Upon completion of research Project 1 (by 30 September 1999) ; a detailed program work plan will be established along with a firm budget for year 2 activities (1 July 2000-30 June 2001). It is desirable that the year 2 budget will be approved by ADOT no later than 31 December 1999. Each year thereafter, a refined, detailed work scope will be developed by ASU and submitted to ADOT for comments and approval. The same relative time schedule within the year shall be used to approve the next year's work plan and budget.